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1909

REPORT ON MINING PROPERTIES

Owned and Operated

by

AUSTIN MANHATTAN CONSOLIDATED MINING COMPANY

at and near

Austin, Lander County, Nev.

by

GEORGE K. WILLIAMS

of Farmington, Mo.

Former Mine Inspector
for the
State of Missouri.

John M. Kreider and Associates,

St. Louis, Mo.

Gentlemen:

Pursuant to my agreement, made with you in Chicago on March 27, 1909, to undertake a comprehensive examination of the properties of the Austin Manhattan Consolidated Mining Company, located in the Reese River mining district, at and near Austin, Lander County, Nevada, and to furnish to you a report upon the same, I beg leave to state that I have made such examination, and I submit the following report, together with records of analysis of ores secured by myself from the various properties of the Company, and which are hereto attached as a part of my report:

On Tuesday, April 20, 1909, I arrived in Austin, Nevada, and, accompanied by Mr. W. W. Wishon, general manager of the Austin Manhattan Consolidated Mining Company, and Mr. C. F. Littrell, superintendent of the same Company, I made a preliminary examination of the Austin Tunnel and some of the old waste-dumps, etc. Throughout the other investigations I was usually accompanied by Mr. Littrell, who is thoroughly familiar with the district and its history, being also a man of much practical experience in mining. Let me state here that all facts brought out in this report, and whatever opinions I may express in connection therewith, are based upon my own personal observations, which extended over a period of eight days. During that time I covered practically the whole extent of the

properties of the Austin Manhattan Consolidated Mining Company; examined on two occasions the so-called Austin Tunnel, which is the key to practically all of the contemplated operations of the Company; inspected the mill and other physical properties of the Company; made an investigation of the proposed water-power plant resources; thoroughly examined the Isabella, Jackpot and Hardy workings, the only workings at that time safely accessible, and took numerous samples from the various veins in these mines, in the Tunnel, and from the waste-dumps, which I personally delivered to the assayers, Mr. Lochiel M. King, of San Francisco, California, and Messrs. Regis and W. M. Chauvenet, of St. Louis, Missouri.

Location and Topography.

The district covered in this report is known as the Reese River mining district, of which Lander Hill is about the center. The properties of the Austin Manhattan Consolidated Mining Company are located on Lander Hill, Central Hill, Union Hill, and in Yankee Blade, Pony, Crow, and Marshall Falls canyons. This district may be said to lie just east of Austin, the county seat of Lander County, Nevada, ninety-three miles south of the railway station known as Battle Mountain on the main line of the Southern Pacific Railway, and with which Austin is connected by a narrow gauge line of railway, known as the Nevada Central. The mountains in which are located these hills and canyons are known as the Toiyabe Range, and the elevation of the district is from 6,500 to 7,500 feet. In extent, the Reese River mining district is about eight miles in length and two

miles wide, running from Crow Canyon on the south to San Francisco Canyon on the north. The holdings of the Austin Manhattan Consolidated Mining Company embrace practically this entire area and it is certain that they embrace the best of the mineralized sections.

Lander Hill.

Of first consideration is Lander Hill, for it is here that the greater part of the work of former years has been done, and here that most of the future will be done. Approximately seventy shafts have been operated on this hill, the depths varying from 100 to 1,000 feet. Lander Hill rises to a height of more than 1,000 feet above the Reese River Valley, in which Austin is situated, and is due east of Austin. On the northeast of Austin is the Yankee Blade district, and to the south Crow Canyon, where is located the new Hardy mine, described herein. Practically the whole of the Yankee Blade district is virgin ground and the same also is true of Crow Canyon, and both these sections, basing my opinion upon what I observed from the surface workings, are heavily mineralized.

The typical granitic formation of Lander Hill is traversed by a large number of veins, running in a northeast to southwest direction, on a pitch of from 25 to 40 degrees from the horizontal. These veins can usually be located by the outcroppings on the surface, the ores found on top indicating values from the grass roots. A greater part of these veins have been worked down to depths varying from 100 to 1,000 feet, as before stated. These veins were good producers of high-grade ore and the shafts to which access

could be gained, as the Isabella, show large bodies of ore, the values in which are shown by the assayers' reports attached hereto. The depths to which the mines were previously worked are not sufficient to show the mineralization which may be presumed to exist at lower depths, although the lower workings of the Isabella do tend to show that the veins increase with depth. The general indications are that the great body of ore, possibly low-grade, but more likely of a higher grade than that of the veins near the surface, will be found in the lower depths.

The Vein System.

The vein system of the Reese River mining district, which reaches its perfection in the system of veins encountered in Lander Hill, apparently begins with the South Sebaker vein in Marshall Canyon, which appears to form the foot-wall of this vein system. From Marshall Canyon this system extends due north to the Patriot vein, situated in the Yankee Blade district, a distance of about six miles, and including the Yankee, Midas Flat, Lander Hill and Union Hill systems of veins. These veins vary from 50 to 300 feet apart, and in some cases were found to be very near together, and in width they vary from 10 inches to 5 feet.

On the south I find this system of veins crossed by a separate and independent system running in a north and south direction on the foothills of the Toiyabe Range. These veins dip almost perpendicularly. The width of the section thus mineralized is about one mile, and the length, as far as could be ascertained, is about five

miles. While this cross system of veins shows well on the surface and carries considerable values in gold, there has been no extensive development work, the most of the ground being virgin. This system lies in a formation of granite and porphyry, the porphyry dykes cutting the country very strongly. The Hardy, North Hardy, Mizpah, Golden Eagle, D. & H., and Marshall Falls lie on the south, and on the western slope of Union Hill lie the Jackpot, Bryan and several others in this cross-vein system. Then again, going north, we encounter the Stray Dog Nos. 1 and 2, the Midnight Nos. 1, 2, 3, and 4, and the Independence Nos. 1 and 2. These vary in width from 15 inches to six feet, being from 25 to 100 feet apart.

Isabella Shaft.

This shaft, lying on Lander Hill, is a typical property of this section. It is the only shaft at present easily accessible, most of the others having been rendered inaccessible by neglect of former owners. The depth of the Isabella is 640 feet on an incline. The Isabella shaft crosses a large number of veins carrying considerable ore of high grade, and large quantities of low-grade ore. I gathered samples from various ledges of the Isabella, and endeavored in every way to secure exact averages from the several ledges. These samples have been subsequently assayed and the values as shown by these assays are given in the assay report hereto attached. These figures should indicate, as nearly as is possible, just about what we should expect from the ores of the Lander Hill vein system throughout.

Jackpot Shaft.

The Jackpot shaft lies on the western slope of Union Hill. Practically all the work at this point has been done recently and is now in progress. The workings consist of a tunnel driven into the hill about 100 feet, where it encounters the vein. The vein has been worked out for a distance of 78 feet and from this distance I took a large number of samples, the assay reports on which are hereto attached. Further north on the same vein a vertical shaft is being sunk. At the time of my examination this shaft was down about forty feet. The vein showed very plainly in the shaft and apparently carries good values, but as I had samples from a lower depth on the same vein, I took no samples from the shaft.

Hardy Shaft.

The Hardy shaft is typical of the southern part of the Austin Manhattan properties. At the time of my examination this shaft was down a distance of 35 feet, exposing in the bottom a vein four feet wide for the distance of 25 feet north and south, which indicated very heavy values. Samples were taken as average along the extent of the vein. These samples show what is to be expected from the upper workings of a great area of virgin ground in the southern section of this mineralized zone. There has been very little development work done in the southern section and the greater part of it is heavily mineralized ground. Enough work has been done, however, and was examined by me to assure me that I cannot be mistaken in the statement that this section is very heavily mineralized, and I

am very sure that there are large quantities of high-grade ore here.

Austin Tunnel.

This tunnel, which, as I have stated heretofore, is the key to the greater part of the operations now under way and contemplated by the Company, is driven into Lander Hill, beginning at the mouth of Pony Canyon, for a distance of 6,000 feet, where it connects with the bottom of Frost Shaft at a depth of 680 feet. During my examination extensive work was in progress at the bottom of this shaft. A large chamber, in which is to be located the principal station of the underground haulage system, was being blasted out in the granite. The haulage system, which will handle all of the ores from the workings to the mill, will be electrified throughout.

I may state that, in my opinion, the Austin Tunnel fulfills most admirably the objects for which it was driven, viz: (1) to intersect the vein system of Lander Hill at a comparatively low level, and through cross-cuts from the Tunnel to intersect all of the veins of Lander Hill; (2) to permit an easier and more economical method of working the ores, it being easily seen that the tunnel system has vast advantages over the old method of working through vertical shafts sunk from the top of the ground; (3) to solve the problem of economically and quickly transporting the ores from the mines to the mill, thus doing away with the costly system of hoisting, heretofore in vogue; (4) to provide a thorough system of gravity drainage and in this way avoid much of the costly

pumping heretofore necessary. In this respect excellent work has been done, the floor of the Tunnel being so constructed as to enable it to carry off large quantities of water; (5) to provide a system of ventilation for the underground workings. This has been accomplished beyond any doubt, the air in the Tunnel at the bottom of Frost shaft, and throughout the Tunnel, being as pure, as far as I could ascertain, as that on top.

The Austin Tunnel itself is an excellent piece of work throughout. The timbering is the best work of its kind I have ever seen. The tracks of the haulage system are laid with 66-pound steel rails, and the drainage arrangements are excellent. On account of the necessity of timbering the points crossed by the numerous veins, in order to make the Tunnel safe for the construction work now in progress, it was not possible to make an exhaustive examination of the ores, at all points, for the values which they carry. However, I took samples from the vein crossed at a point about 400 feet from the Frost Shaft, from one about 2,000 feet from the Frost Shaft, and from one near the point where the cross-cut leads off 2,800 feet to the north. These samples are fairly representative (if anything below the average for the Tunnel) of the ores existing in great quantities in the numerous veins encountered throughout the Tunnel. I would state that there are, undoubtedly, large bodies of ore, equivalent in value to, or better than, the samples which I secured, and which are easily to be mined from the Tunnel. That even larger bodies will be encountered at lower levels may be confidently expected. This is particularly true of mineralized regions where

the ores occur in true fissure veins, and the veins of the Reese River valley country are true fissure veins in every sense of the word. The system of veins on the Austin Manhattan property, as shown by the old workings, the outcroppings in virgin ground, and confirmed by veins encountered in the tunnel, is remarkably strong and well-defined. By all observed rules of geological formation, the extent of the ore deposits and the values present in those deposits should increase with depth.

The cross-out work from the main tunnel, which work begins at a point 3,855 feet from the mouth of the main tunnel, and leads to the vicinity of the King Alfred shaft, a distance of 2,800 feet to the north, was not in a condition to be entered for inspection at the time of my examination, on account of the general unsafety of the walls and roofs, due to insufficient timbering. However, the work of cleaning out and retimbering this cross-out was progressing rapidly and was being done in as thorough a manner as in the main tunnel.

Ores in the Old Waste-Dumps.

A very careful examination of the various waste-dumps, scattered in large numbers over the Austin Manhattan property, convinced me that there are large quantities of low-grade ore lying on top of the ground and which was refused in the earlier days of mining because the processes of extraction had not been perfected to the point where ores running less than \$100 per ton could be profitably milled. It would be hard to estimate even approximately

what these dumps would yield, but it is unmistakably true that they contain great values in the aggregate, and that they can be milled at a profit. I secured from these dumps a number of averaged samples, the analysis of which showed the values as given in the assay statement hereto attached.

Mill and Power Plant.

During the course of my examination I made a very thorough inspection of the physical property of the Austin Manhattan Company, including the thirty-stamp mill, and the boilers, engine, machine shops, air compressors, etc. I found the construction work to be of excellent character, the entire plant being built with a view to permanence. The mill is built of heavy timbers, the machinery is all of the best type and in excellent condition. The air compressors are capable of furnishing air to a large number of drills, I should say twenty-five or thirty. The electrical machinery necessary for supplying light and power throughout the mill, tunnel and underground workings is installed and ready for work. In a word, I found the mill and all of its accessories in good shape.

Proposed Water-Power Plant.

In view of the proposed plan to utilize water power, available in Big Creek Canyon, for operating the Austin Manhattan plant, thus bringing about a large saving in fuel, I made an examination of this resource and found it to be one of great possibilities. At the head of Big Creek Canyon, which lies 14 miles by a circuitous

route to the south of Austin, and about 10 miles by an air line, are a considerable number of springs, the largest of which is known as Big Spring, and there is, besides, a considerable amount of water coming down from Crow and Horse Canyons, which could be utilized together with the water from Big Spring. It would be entirely feasible, in my opinion, to take this water from Big Spring, about 500 feet up what is known as the Hogan Ditch, now used for irrigation purposes, and conduct it through a pipe-line down to what is known as the old Sam Wallace place, a distance of four miles, and three miles below the Carter Ranch, a total distance of about seven miles. At this point the stream of water would have a fall approximating 1,500 feet. The plant erected here would be about five miles from the mill by a wire line. The piping of the water to this point, while necessitating a larger outlay in the beginning, would effect a continuous saving in power, as the loss in transmission would be much less in the five miles than in the ten miles should the Plant be erected in the vicinity of Big Spring. Also, the fall of water would be considerably greater, in fact, almost double that to be obtained in the vicinity of Big Spring. The fall at this point has been estimated at 900 feet, while by piping the fall could be increased to 1,500 feet, as stated before.

Other plans for utilizing the water power in Big Creek Canyon have been offered, but they are only variations of the above outlined plan and appear to be less simple. I have made no effort to work out the details of the plan suggested, nor to estimate the horsepower

which could be developed, but I am convinced that it would be large, amply sufficient for the needs of the mill and for the operation of all machinery on the property of the Austin Manhattan Company, and that the plan is entirely feasible.

History of the District.

It is unnecessary, in view of the many authentic statements made relative to the production of this district in the past, for me to enter into a discussion of its history. That it has been a great producing district is amply borne out by United States Government reports and by other reports of an official character, and it has been shown beyond question that the district was practically abandoned not because of an exhaustion of the ores, but because of the large bodies of low-grade ore, or ore which would not yield more than \$100 per ton, which were encountered in the lower depths.

CONCLUSIONS.

Considering the properties of the Austin Manhattan Consolidated Mining Company from every standpoint, and reaching my conclusions after a very careful examination of the properties themselves, I will state that these properties undoubtedly contain great deposits of silver ores, with variable gold values. There is, it is true, much high-grade ore yet in this district, but the greater portion of the Austin Manhattan ores, in my opinion, will run under \$100 per ton. However, with the processes now in use for the treatment of low-grade silver ores, mines producing \$100 ore may be said to be true bonanzas; \$50 ores can be worked at very large profits,

and \$25 ores will show handsome returns over the cost of mining, milling, transportation and all other items of expenditure.

The Austin Manhattan Consolidated Mining Company has undertaken this great project, for it is a great project from every standpoint, in what to me seems the very best possible manner. Every step is being taken to eliminate unnecessary cost of mining, transporting and milling the ores. This is a fact which should receive the highest consideration. The utilization of the Austin Tunnel will result in great economy. Expense of hoisting and transportation will be practically eliminated. The drainage problem will solve itself, and the underground workings will be able to send a continuous stream of ore direct to the mill, day after day.

The project to utilize water power for the operation of the mill and all other machinery on the properties, will if carried out, result in an unusual saving, because, in the West, fuel is a double item of expense.

Finally, I would state, as my unqualified opinion, that the Austin Manhattan Consolidated Mining Company possesses in its properties in Lander County, Nevada, a great body of silver ore, which, if mined under the plans now contemplated and under competent management, which certainly it now has, undoubtedly will procure large profits for those who may be owners in the company.

I attach hereto the assay reports, as follows:

Assay Reports on Samples

from Austin Manhattan Properties.

The attached assay reports on ores taken by me from various

properties belonging to the Austin Manhattan Consolidated Mining Company, Lander County, Nevada, were made as follows: Nos. 1, 2, 3, 4, 5, and 6 by Regis Chauvenet & Brother, of St. Louis, Mo.; and Nos. 5206, 5207, and 5208, by the King Metallurgical Laboratories, of San Francisco, Cal.

I wish to state that in no instance were high-grade ores selected. The samples, in every case, were taken across the entire width of the veins and for considerable distances along the veins, these distances varying from a few feet to 75 feet, as the exposures of the veins permitted. I endeavored in every way to obtain samples which would show values identical with those which will be obtained in actual mining and milling. I could have taken samples which would have run far in excess of \$100 per ton, but these would not have given the true worth of the ores to be mined. I am confident, and will state unreservedly, that these assay reports should be borne out in actual mining and milling of the ores, and if there should be any variance, the regular run of mined and milled ores from the Austin properties may be expected to show higher values than those shown by the following assays:

*No. 1. 1/2 Hardy at 35 feet; 1/2 Hardy from other points:

Silver -- 117.6 ounces; gold, 0.02 ounces; value -- \$59.20

*No. 2. Jackpot:

Silver -- 79.96 ounces; gold, 0.02 ounces; value -- \$40.38

*No. 3. Silver Chamber:

Silver -- 24.00 ounces; gold, traces; value ----- \$12.00

"No. 4. Isabella; Lindsay ledge, Haze vein, Dollarhide vein, Curley ledge (combined):

Silver -- 61.84 ounces; gold, 0.02 ounces; value -- \$31.32

"No. 5. 6000 foot Tunnel; at 2,000 feet, at 400 feet (combined):

Silver -- 57.10 ounces; gold, traces. value ----- \$28.55

"No. 6. Mixture of North Star, Farrel, South America and Frost shaft dumps:

Silver -- 54.40 ounces; gold, 0.02 ounces; value -- \$27.60

"No. 5206. Patriot vein, Yankee Blade District:

Silver -- 1.05 ounces; gold, 0.01 ounces; value -- \$00.75

"No. 5207. 6000-foot Tunnel, near cross-out:

Silver -- 95.35 ounces; gold, 0.02 ounces; value -- \$48.00

"No. 5208. Four old dumps, dirty broken quartz:

Silver -- 6.75 ounces; gold, 0.01 ounces; value -- \$ 3.58

Notes Relative to Above Reports.

The following notes show from what point the ores, as assayed above, were taken, and how they were taken:

No. 1 - Hardy. Samples taken across the width of a four-foot vein, exposed for a distance of 25 feet, and at a depth of 35 feet. The ore which must be mined and milled from this vein should run as high, and perhaps higher, than the assay figures indicate.

No. 2 - Jackpot. Samples taken across the width of an 18-inch quartz lead, exposed for a distance of 78 feet horizontally, at seven points, and from points up and down on the vein, which had been exposed at one place for a distance of 18 feet vertically.

No. 3. Silver Chamber. Samples taken very near the surface from a low-grade vein not worked by former operators of the mine. The dangerous condition of this shaft made it inaccessible for any examination worth while. Very rich ores have been taken from this mine by former operators.

No. 4 - Isabella. Samples taken across the width of the Lindsay Ledge, two feet; across the Haze vein, two feet in width, and for a distance of 35 feet along the vein horizontally; across the quartz lead of the Dollarhide vein, 6 inches in width, and for a distance of 75 feet; across the Curley ledge, two feet wide and for a distance horizontally along this ledge of 75 feet. These samples, representing the average of all ores from the Isabella mine, were assayed as one sample, and they indicate, in my opinion, the lowest values that will be recovered from all the ores to be taken from this mine. More select samples from the veins of the Isabella would give values running far in excess of \$100 per ton.

No. 5 - Austin Tunnel. Samples taken across the width of veins exposed at points 2,000 feet from the Frost shaft and 400 feet from the Frost shaft, respectively. The values shown in these samples are, in my opinion, exceptionally good. I may state that these tunnel samples were below the average for the two tunnel veins from which they were taken.

No. 6. Dumps. Samples taken from the waste-dumps of the North star, Farrel, South America and Frost shafts, which contain an immense tonnage. These samples represent fair averages of the quartz in the dumps and were not picked samples in any sense of the word. They are,

in my opinion, an average of the quartz to be found in large tonnages in the waste dumps. Some of this quartz will run close to \$100 per ton.

No. 5206-Patrolt Vein. Samples taken from the outcroppings on the surface of the ground of the Patriot vein, Yankee Blade district. The fact that these samples show any value whatever is, in my opinion, remarkable.

No. 5207-Austin Tunnel. Samples taken across the width of vein encountered in the Austin Tunnel near the point where the cross-cut tunnel leads off to the King Alfred shaft. The values shown by these samples bear out my belief that the Tunnel ores now in sight will average better than is indicated in the samples assayed under the heading "No. 5."

No. 5208-Dumps. Samples picked up along the road leading past several old dumps of the Austin Manhattan property. These samples are considerably below the average value of the ore in the dumps, as will be seen by comparison with "No. 6" given above, which assay is based on what I confidently believe to be the true averages of values from the old waste-dumps.

In concluding this report on the properties of the Austin Manhattan Consolidated Mining Company, located in Lander County, Nevada, I desire to repeat the statement made heretofore, and which is my

confident opinion, that these properties are fully capable of
producing large profits for those who may be owners in the Company,
and undoubtedly will produce such large profits.

Respectfully submitted,

George K. Williams.

May 28, 1909.

LOCHIEL M. KING
CONSULTING METALLURGIST

PHONE KEARNY 2880

JAMES H. HOWSON
CHEMICAL ENGINEER

COMPLETE ORE TESTING
METALLURGICAL INVESTIGATIONS
PLANTS DESIGNED AND ERECTED
ORE SAMPLING SUPERVISED
CONTROL AND UMPIRE ASSAYING

The King Metallurgical Laboratories

(FORMERLY SIMONDS & KING)

S. E. COR. SECOND AND MINNA STREETS
SAN FRANCISCO, CAL.

CHEMICAL INVESTIGATIONS
INDUSTRIAL AND MANUFACTURING
CHEMISTRY
CEMENT AND CLAY ANALYSIS
BASE METAL ALLOY AND
FOUNDRY ANALYSIS

CERTIFICATE OF ASSAY

RECEIVED FROM Mr. Geo. K. Williams

3 SAMPLES

ASSAYED FOR Gold and silver.

DATE REPORTED Apr. 30, 1909.

VALUES PER TON OF 2000 POUNDS

GOLD @ \$20.67 PER OUNCE

SILVER @ 500 PER OUNCE

@ PER POUND

LABORATORY NUMBER	MARKED	GOLD		SILVER		PER CENT		TOTAL VALUE	
		OUNCES	VALUE	OUNCES	VALUE				
5206	Patriot Vein Yankee Blade Distr. Austin Man- hattan Mg. Co. Austin.	0.01	\$0.20	1.05	\$0.53	\$0.73	
5207	600 ft. Tunnel. Austin Manhattan Mg. Co. Austin, Nev.	0.02	\$0.41	95.35	\$47.68	\$48.09	
5208	Samples from four old dumps. Austin Manhattan Mg. Co. Austin, Nev.	0.01	\$0.20	6.75	\$3.38	\$3.58	

The King Metallurgical Laboratories

BY R. M. Diggle
ASSAYER

REGIS CHAUVENET

W. M. CHAUVENET

REGIS CHAUVENET & BROTHER

MINING ENGINEERS

ANALYTICAL CHEMISTS AND ASSAYERS

937 EQUITABLE BUILDING
DENVER

LABORATORIES
620 CHESTNUT STREET

St. Louis,

May 25-1909.

George K. Williams,

Dear Sir,

follows-

Six samples of ore left for assay, result as

No.1. 1/2 Hardy from 35 feet, 1/2 Hardy from other point.

Silver.----- 117.6 - Gold.----- 0.02 Oz. Value.--- \$59.20

No.2. Jack Pot.

Silver.----- 79.96 - Gold.----- 0.02 " Value.--- \$40.38

No.3. Silver Chamber.

Silver.----- 24.00 - Gold.----- 0. traces. Value.--- \$12.00

No.4. Isabella-Linsey, and Haze veins. Dollarhide. Curley Ledge.

Silver.----- 61.84 - Gold.----- 0.02 Oz. Value.--- \$31.32

No.5. 6000.ft.tunnel-2000 feet, 6000.ft.tunnel 400 ft.

Silver.----- 57.10 - Gold.----- 0. traces. Value.--- \$28.55

No.6. Mixture of North Star, Farrell Vein, South America, & Frost.

Silver.----- 54.40 - Gold.----- 0.02 Oz. Value.--- \$27.60

Respectfully,

Regis Chauvenet & Bro